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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,887	10/29/2003	Leszek Cieplinski	1906-0129P	4115

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EXAMINER

BITAR, NANCY

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/08/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/08/2007.

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mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/694,887	CIEPLINSKI ET AL.	
	Examiner	Art Unit	
	Nancy Bitar	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments filed December 20, 2006 have been fully considered but they are not persuasive.
2. Applicant's has amended claim 1, 11, 13 and 14 and claim 12 is cancelled. Claims 1-11 and 13-15 are pending.
3. Amendment to the specification has been entered and is accepted by the examiner.

4. Claim Rejection Under 35 U.S.C. § 112, first Paragraph.

Applicant does not argue nor amend claim 10 in order to comply with the written description requirement. *Therefore, Examiner maintains her rejection.*

5. Rejection Under 35 U.S.C. § 102

As to Deficiencies of Hori- Independent Claim 1, on page 9, applicant argues that *Hori fails to teach an object appearing in a sequence of images wherein an error value is based on the change in area of the object as represented by the representative point and the area of the object with the representative point replaced by the respective approximate function value.* However, reference teaches a method of setting the area of the approximate figure to the value obtained by multiplying the area of the object region by a constant. Moreover, to make the determination to change the reference object region to an object region depends on the error between the actual object region and the predicted object region, a ratio of the area of a common portion to both regions

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to the area of a part which is not common can be used [0335]. Applicant argues that reference teaches the error values look at the maximum difference for a particular vertex between the approximate function trajectory and the actual trajectory where each vertex is treated separately with a respective or approximate function and error value . Examiner disagree with applicant because the difference between the area of the object region is taken through the actual X and Y component of the location and the function approximation is derived for each representative point in order to relocate to the position indicated by approximate function. Applicant argues that the *present invention look at the difference between the area of the object region with a representative point*. Hori clearly teaches in column 9, lines 38-45 that the DIFFERENCE IN AREA between the object region and the approximate polygon may lie within a reference. Examiner still maintains his position.

6. Rejection Under 35 U.S.C. §103

Applicant did not specifically argue the 103 rejection presented by the Examiner.

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which

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was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 10 recites, "deriving a representation of the query object motion".

However, there is no description in the specification to support the limitation " a representation of the query object motion " as recited in the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-9 and 11,13 -15, are rejected under 35 U.S.C. 102(b) as being anticipated by Hori et al (EP 1 154 379 A2)

As to claim 1, Hori et al. discloses a method of representing motion of an object appearing in a sequence of images comprising deriving for each image a set of representative points (extracting a plurality of points representing the figure for each of the frames, see column 3, lines 41-42) representing the location of the object (data indicating positions of the plurality of points, see column 3, lines 45-46),

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deriving an approximate function representing the trajectory of a representative point in two or more of said sequence of images (the representative point trajectory function approximating device 104 approximates a time series of the positions of the representative points extracted at the figure representative point extracting device 103, see column 10, lines 33-37),

and calculating an error value for said approximate function for the representative point for an image (describing the object region data using the functions, see column 3, lines 47-48, In Step S603, an approximation error $e_{(j)}$ ($j=0,1,\dots,M-1$) of the approximate function is calculated, see column 15, lines 17-21, note that the approximation device 102 outputs information about the approximate figure for one frame, see column 10, lines 27-29)), wherein that the error value is based on the change in area of the object as represented by the representative point and the area of the object with the representative point replaced by the respective approximate function value

$((e_{(j)} = \max |v_{(j)}(t_h) - F_{(j)}(t_k, t_i(t_h))|$, see column 15 line 21, note that the method creates an initial approximation polygon for the object region and then decreasing the number of vertexes of the approximate polygon so that the difference in area between the object region and the approximate polygon may lie within a reference, see column 9, lines 38-45).

As to claim 2, Hori et al. teaches a method as claimed in claim 1 wherein the error value is based on the change in area in an image (step S603, figure 7,

$(e_{(j)} = \max |v_{(j)}(t_h) - F_{(j)}(t_k, t_i(t_h))|$, see column 15 line 21, note that change of region is denoted as change of area and note that the approximate function $v_{(j)}(t)$ found over the

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section ranging from t_a to t_b is denoted by $F_{(j) t_a, t_b}(t)$ ($j = 0, 1, \dots, M-1$), the starting point $v_{(j)K}$ is denoted by $F_{(j) t_k, t_i}(t_k)$, and the ending point $v_{(j)i}$ is denoted by $F_{(j) t_k, t_i}(t_j)$, see column 15 lines 12-16).

As to claim 3, Hori et al. teaches a method as claimed in claim 1 wherein the error value is based on the change in area in a plurality of images (step S603, figure 7, $(e_{(j)}) = \max |v_{(j) t_h} - F_{(j) t_k, t_i}(t_h)|$, see column 15 line 21, note that change of region is denoted as change of area and note that the approximate function $v_{(j)t}$ found over the section ranging from t_a to t_b is denoted by $F_{(j) t_a, t_b}(t)$ ($j = 0, 1, \dots, M-1$), the starting point $v_{(j)K}$ is denoted by $F_{(j) t_k, t_i}(t_k)$, and the ending point $v_{(j)i}$ is denoted by $F_{(j) t_k, t_i}(t_j)$, see column 15 lines 12-16).

As to claim 4, Hori et al. teaches a method as claimed in claim 1 wherein a function approximation is derived for each co-ordinate of a representative point (each representative point is represented by the horizontal coordinate axis X and the vertical coordinate axis Y, see column 10, lines 30-32)

As to claim 5, Hori et al. teaches a method as claimed in claim 1 wherein a function approximation is derived for each representative point (step S4, figure 2, note that this function is expressed for each representative point and differs in expression, see column 10, lines 41-43)

As to claim 6, Hori et al. teaches a method as claimed in claim 1 wherein a function approximation is done for representative points independently (a straight line or a spline curve may be used as a function representing a representative point trajectory, see column 10, lines 50-52).

As to claim 7, Hori et al. teaches in figure 5 a method as claimed in claim 1 wherein a function approximation is done for two or more vertices in conjunction (the vector from vertex V_0 to V_1 is denoted by $V_{0,1}$ and vector $V_{1,2}, V_{2,3}, \dots, V_{M-2,M-1}$ are determined, see column 14, lines 19-20, note that the function approximation device 104 calculates an approximation function 503 that expresses the values of the X-component and Y-component of each vector, see column 14, lines 28-31).

As to claim 8, Hori et al teaches a method as claimed in claim 1 wherein the error value for an image is based on a function of the number of pixels (generating and storing a bit map on which "1" corresponds to the interior of each object, see column 45, lines 53-55) that are in the modified object outline(manually inputting the contour, object regions may be obtained automatically by executing an image processing, see column 45 lines 48-49) replacing a representative point by the function approximation value of the representative point but not the original outline and the number of pixels that are in the original outline but not in the modified outline (fitting an inputted contour to the contour line of the object in an image by means of a technique using a dynamic outline model referred to as Snakes, the interior of the contour thus fitted may be set as an object regions, see column 45, lines 41-44) .

As to claim 9, Hori et al teaches in figure 8 a method of identifying selection of an object in an image in a sequence of images, wherein the object motion has a representation derived using a method as claimed in claim 1 (as rejected in claim 1 above), the method comprising identifying a selected region of the image (700), determining the location of said object in said image using said motion descriptor

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(704, note that the representative point trajectory 704 describes the trajectory of a representative point, see column 16, lines 42-43), note that minimum rectangle or polygon as encloses the whole of each object trajectory is compared with the inputted coordinate and only objects included in the smallest rectangle or polygon which encloses the whole trajectory are extracted (the number of extracted objects may be 0, 1, or more), see column 30, lines 43-48)

As to claim 11 differ from claim 1 only in that claim 1 is a method claim whereas, claim 11 is an apparatus claim. Thus, claim 11 is analyzed as previously discussed with respect to claim 1 above.

As to claim 13 and 14 differ from claim 1 only in that claim 1 is a method claim whereas, claim 13 and 14 is an apparatus claim. Thus, claim 13 and 14 are analyzed as previously discussed with respect to claim 1 above.

As to claim 15, Hori et al. in figure 8 a descriptor of motion (related information is attached to the object region data, column 20, lines 56-58) of an object in a sequence of images derived by a method according to claim 1 (database including related information about individual objects exists independently from the object region data, see column 20, lines 56-58). Note, applicant discloses in the specs[0028] that a descriptor database 10 storing descriptors of objects or parts of objects appearing in images stored in the image database 8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hori et al in view of Cieplinski et al (WO 00/67203).

As to claim 10, note the discussion of Hori et al, Hori et al disclose the method of representing motion of an object as recited in claim 1 with exception of describing the limitation "searching a query object motion". For example, Hori discloses a method searching for sequences of images by processing signals corresponding to images (the information processing system that handles the video data and its object region data, an object close to the specified position can be searched for using these three-dimensional data items and step S2700, positional information about the specified object to be searched for is inputted, see column 25, lines 10-18) but does not mention the input of the query object motion and deriving a representation based on the method. Cieplinski et al in figure 3, teaches a method of searching for sequences of images (202, display search images) by processing signals corresponding to images (the invention also provides a method of searching for images using such descriptors, page 3, lines 15-16), the method comprising inputting a query object motion (206, retrieve descriptor for query image region), deriving a representation of the query object motion (208, derive matching values M for each descriptor in descriptor database), comparing the representation with representations derived using a method as claimed in claim 1 (210, order matching values), and selecting and displaying those sequences of images for which the representations indicate a degree of similarity to the

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query(212,display K images corresponding to K highest matching values). Note that searching techniques based on image content for retrieving still images and video from, for example, multimedia databases are known. Various image features, including color, texture, edge information, shape and motion, have been used for that techniques, see page 1, lines 6-11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the searching techniques based on image content for retrieving still images and video from, for example, multimedia databases are known (page 1,lines 6-10).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nancy Bitar whose telephone number is 571-270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nancy Bitar

02/20/2007

JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER